Statement of
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U.S. Department of Energy
before the
Committee on Commerce, Science and Transportation
United States Senate
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Mr. Chairman and Members of the Committee:

I appreciate the opportunity to appear before you today to discuss recent developments in energy markets and the impacts of Hurricane Katrina on gasoline prices.

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Before I begin I want to note that the outlook for oil markets presented in this testimony does not include any assumption about the potential for significant disruption to energy markets caused by Hurricane Rita.

Even before Hurricane Katrina struck, crude oil and petroleum product prices were setting records. On August 26, the near-month price of crude oil on the New York Mercantile Exchange closed at over $66 per barrel, which was $23 per barrel, or more than 50 percent, higher than a year earlier. On August 29, as the hurricane made landfall, average gasoline prices stood at $2.61 per gallon, 74 cents higher than one year earlier, and diesel prices were $2.59, or 72 cents higher. Oil prices worldwide had been rising

steadily since 2002, due in large part to growth in global demand, which has used up much of the world's surplus production capacity. Refineries have been running at increasingly high levels of utilization in many parts of the world, including the United States. High production of distillate fuels and higher-than-average refinery outages this summer added to tightness in gasoline markets.

Hurricane Katrina wrought incredible devastation on the central Gulf Coast, most importantly in terms of human suffering, but also in economic impacts that have spread well beyond the stricken area. At its peak impact, Katrina shut down over 25 percent of U.S. crude oil production, 20 percent of crude imports, and 10 percent of domestic refinery capacity. Many of these facilities have since restarted, but about 877 thousand barrels per day of crude oil production are offline as of September 20 (an increase of about 40 thousand barrels since the previous day, as a result of preparations for Hurricane Rita), along with four major refineries with a total distillation capacity of 880 thousand barrels per day. At recent historical yields, these four refineries produce approximately 350 thousand barrels per day of gasoline, accounting for about 4 percent of total U.S. gasoline production of 8.5 million barrels per day.

In the immediate aftermath of Hurricane Katrina, with the extent of actual damage still largely unknown, crude oil prices rose briefly over $70 per barrel, up more than $4 in less than 48 hours, but in less than a week had fallen below their pre-storm levels. The impact on crude oil prices was undoubtedly lessened by the relatively robust inventory levels before the storm and by quick assurance that refiners unable to obtain adequate crude oil supplies would be able to borrow by way of time exchanges from the

Strategic Petroleum Reserve, even before the coordinated release of stocks by the United States and other members of the International Energy Agency was announced on Friday, September 2.

The more significant price impact, however, was on finished petroleum products, especially gasoline. Spot prices (the level at which large volumes are sold by refiners, importers, and traders) for gasoline rose as much as $1.40 per gallon east of the Rockies within 3 days. The sudden increase in product prices, far exceeding the rise in crude oil prices, represented an increase in the so-called "crack spread," defined as the difference between a petroleum product price and the underlying price of crude oil.

EIA survey data showed that the national average retail price for regular gasoline price rose 46 cents in a week to $3.07 per gallon as of Labor Day. While prices rose throughout the country, the East Coast experienced the largest price increase.

The seemingly disproportionate change in finished product prices reflects the severity and expected persistence of Hurricane Katrina's impact on refining operations in the Gulf. Additionally, the shutdown of the Capline, a major crude oil pipeline from Louisiana to the Midwest, reduced crude supplies to refineries there, causing several to temporarily reduce operations. Finally, the temporary closure of the Colonial and Plantation product pipelines virtually halted distribution of products from the Gulf Coast to the lower East Coast, as far north as Baltimore, in the aftermath of Katrina. In the first week following the storm, rumors abounded that supplies would run out, particularly for gasoline, which nearly became a self-fulfilling prophecy as thousands of drivers rushed to top off their tanks. Gasoline inventories,

which were already at their seasonal low point before the storm, dropped another 4 million barrels in the next week, with the Southeast, due to its dependence on the refineries and pipelines most affected, showing the largest decline. As of September 9, total gasoline inventories were 192.0 million barrels (data for last week will be released today, September 21). It should be recognized that supplies of all petroleum products will likely remain tight in the coming weeks, and possibly months, although increased imports may make up some of the overall product shortfall.

While recent movements in crack spreads were heavily influenced by the effects of Hurricane Katrina, crack spreads were trending upwards well before the storm struck. As U.S. refineries have operated increasingly close to full capacity and product demand continues to rise, the balance of demand must increasingly be made up from imports. This, in turn, requires a sufficient price differential between the United States and other world markets to attract the needed imports. Although this does not increase the **cost** of refining products in the United States, it does tend to increase the **market value** of finished petroleum products relative to crude oil.

Wholesale petroleum product prices, like those of crude oil, have fallen back from their peak levels. Similarly, the U.S. average retail gasoline price has dropped--by 28 cents per gallon in the past 2 weeks--and, as of Monday, September 19, was about 18 cents higher than its pre-hurricane level.

The speed and amount of gasoline price increases following Hurricane Katrina, particularly when compared to the slower decline over the past few weeks, have suggested to some that price gouging or other unacceptable behavior might be taking place in gasoline markets. While EIA's mission

does not include investigation or enforcement functions, we have long studied the manner in which price changes are passed from wholesale to retail markets for gasoline and diesel fuel and have found that there are, under normal conditions, very consistent pass-through patterns, which vary somewhat regionally and between products. The key concept is that of a "distributed lag," in which a change in spot prices in a given week is passed through to retail markets over the next several weeks, with the largest portion in the first week, and progressively smaller amounts over the following weeks. Because of this phenomenon, when there is a short-lived spike in spot prices, retail prices in the next week will typically reflect only part of the spike, while those in the next few succeeding weeks will continue to reflect part of the initial spot increase, while also beginning to reflect the subsequent decrease. Thus, even if the speed of pass-through from spot to retail is exactly the same in the upward and downward directions, the retail price path will appear asymmetrical.

If we look at the actual pattern of prices seen to date following Hurricane Katrina, we find that retail gasoline prices both rose **and** fell somewhat more quickly than suggested by the typical gasoline price pass-through pattern described above and peaked at a higher level. While we have not reached any conclusions about the reason for this (and we are unlikely to ever know the answer with any certainty), there are a few aspects of the situation following Hurricane Katrina that may explain this pattern. One is that under typical market conditions (as reflected in our modeling from historical data), the spot price increase seen in a given week seldom exceeds 10 cents per gallon, whereas average spot prices following Katrina rose by nearly 95 cents in 5 calendar days (only 3 trading days). While marketers might delay

somewhat in passing on a single-digit increase, thus absorbing some of the impact by reducing their profit margins, an increase such as that seen after the storm goes well beyond profits and would require marketers to raise retail prices by virtually the full amount of their wholesale increase merely to avoid sizeable losses. Secondly, independent marketers, who often represent some of the lowest retail prices in the marketplace, were likely to have been disproportionately affected by the supply shortfall, since they typically do not have as much security of supply as branded marketers. The removal or lessening of this downward pull on retail prices could have had some impact on the speed of price changes, both upward and downward, following Hurricane Katrina.

The changes in crude oil and gasoline prices since Hurricane Katrina are reflected in the change in the relative shares of the various components of retail gasoline prices. In the month of July, crude oil made up about 55 percent of the U.S. average price of a gallon of regular gasoline, while refining costs and profits represented about 18 percent, distribution and marketing 8 percent, and taxes 19 percent. As of September 19, those percentages were approximately: crude oil, 52 percent; refining, 24 percent; distribution and marketing, 8 percent; and taxes, 16 percent. Of the current price composition, only the distribution and marketing component is unusual. Due to the lag in price pass-through, this component is larger as prices are falling, but once prices stabilize, will likely return to a more typical share.

The near-term outlook for oil markets will depend on a number of factors, including the timing and pace of the recovery of the petroleum infrastructure

and operations in the Gulf. The rate at which refinery capacity affected by Katrina can be brought back on-line is the major factor affecting petroleum product markets. Although full damage assessments for the four refineries remaining shut down have not yet been possible, early estimates indicate that several of them may be down for months.

Even if the energy system is fully or near fully restored by December, prices for all petroleum products are likely to remain elevated. On September 7, we released our monthly *Short-Term Energy Outlook*. For this *Outlook*, we considered three cases based on the speed of recovery of the energy system from the effects of Hurricane Katrina—Slow, Medium, and Fast Recovery Cases. The Fast Recovery Case assumes a very favorable set of circumstances for returning operations to normal, while the Slow Recovery Case assumes that significant impacts on oil and natural gas production and delivery continue at least into November. In all cases, normal operations are achieved or nearly achieved by December.

The *Outlook* assumes that the loans and releases of crude oil and products from U.S. and other government stocks will help to offset price increases due to Katrina. The WTI crude oil price averaged $65 per barrel in August. In the Medium Recovery Case, we estimate that the WTI will average nearly $70 per barrel for September and about $65 per barrel for the third quarter of 2005, which is about $20 above the year-ago level and $5 higher than in the previous *Outlook*. We estimate that quarterly average prices will remain above $62 per barrel through 2006.

The national average price of unleaded regular gasoline was $2.49 per gallon in August, with prices generally rising throughout the month well before

Katrina impacted refining and production activities – right before Katrina hit, the national average price for regular gasoline was $2.61. Projected gasoline prices in the near-term are very sensitive to assumptions regarding the pace of recovery from refinery outages caused by Katrina. In the Medium Recovery Case in our new *Outlook*, the September average price for unleaded regular is $2.96 per gallon, with prices roughly 20 cents per gallon lower or higher in the Fast and Slow Recovery Cases. Prices are generally expected to decrease in the fourth quarter, with the monthly national average in the Medium Recovery Case falling to $2.71 per gallon in October, $2.56 in November, and $2.47 in December. The third-quarter average price is $0.69 per gallon higher than in the third quarter of 2004. The band of projections for the alternative recovery cases narrows over time. Looking ahead to 2006, the projected average price is $2.40 per gallon.

This concludes my statement, Mr. Chairman, and I will be happy to answer your questions.